



## Ports

### IN

- PN1  
EtherCAT chassis  
LIGO  
D0902552-v3
- PN2  
Name Plate  
LIGO  
D1200133-v1
- PN3  
Rear Panel  
LIGO  
D1201340-v1

CAT5  
Corner

### OUT

- PN5  
Ethernet patch cable, 1'
- PN6  
Ethernet patch cable, 1'

CAT5  
Corner

### A/B/C/D

- PN8  
Ethernet patch cable, 1'
- PN9  
Ethernet patch cable, 1'  
Newark  
21M5658
- PN11  
DB15/male
- PN12  
DB15/male
- PN13  
DB15/male
- PN14  
DB15/male  
Digi-Key  
A32503-ND

Shutter  
Logic

### E/F/G/H

- PN16  
DB9/female
- PN17  
DB9/female
- PN18  
DB9/female
- PN19  
DB9/female  
Digi-Key  
A32510-ND

Beam  
Diverter

- E9 Jack screw
- E10 Jack screw
- E11 Jack screw
- E12 Jack screw
- E13 Jack screw
- E14 Jack screw
- E15 Jack screw
- E16 Jack screw
- E17 Jack screw
- E18 Jack screw
- E19 Jack screw
- E20 Jack screw
- E21 Jack screw
- E22 Jack screw
- E23 Jack screw
- E24 Jack screw
- L-Com  
SDG450XS

Mount the terminal block on spare DIN rail space.  
Use the terminal block to distribute the 24V supply.

This EtherCAT chassis uses copper only.  
Mount the modular adapters to the front panel.  
Using CAT5 patch cables:

- Connect the front panel input to the first coupler (left rail).
- Connect the output of the first coupler to the input of the second one.
- Connect the output of the second coupler to the input of the third one.
- Connect the front panel output to the output of the last coupler (right rail).

## TBLOCK

- PN27 Terminal Block
- PN28 Terminal Block
- PN29 Terminal Block
- PN30 Terminal Block
- PN31 Terminal Block
- Digi-Key  
277-1483-ND
- PN32 End Plate
- Digi-Key  
277-1495-ND
- PN34 Terminal Block
- PN35 Terminal Block
- PN36 Terminal Block
- PN37 Terminal Block
- PN38 Terminal Block
- PN39 Jumper, 10pos
- PN40 Jumper, 10pos
- Digi-Key  
277-1494-ND
- PN41 Terminal Block
- PN42 Terminal Block
- PN43 Terminal Block
- PN44 Terminal Block
- PN45 Terminal Block
- Digi-Key  
277-1483-ND
- PN46 End Plate
- Digi-Key  
277-1495-ND
- PN48 Terminal Block
- PN49 Terminal Block
- PN50 Terminal Block
- PN51 Terminal Block
- PN52 Terminal Block
- PN53 Jumper, 10pos
- PN54 Jumper, 10pos
- Digi-Key  
277-1494-ND

## Slots

1

- PN4  
Adapter panel  
LIGO  
D0902557-v1

2

- PN7  
DB37M adapter  
LIGO  
D0902569-v1

3

- PN10  
DB37M adapter  
LIGO  
D0902569-v1

4

- PN15  
DB25M adapter  
LIGO  
D0902567-v1

5

- PN20  
DB25M adapter  
LIGO  
D0902567-v1

6

- PN21 M12 socket
- PN22 M12 socket
- PN23 M12 socket
- PN24 M12 socket
- Newark  
08R3678

7

- PN25  
DB37M adapter  
LIGO  
D0902569-v1

8

- PN26  
DB37M adapter  
LIGO  
D0902569-v1

9

- PN33  
DB37M adapter  
LIGO  
D0902569-v1

10

- PN47  
DB37M adapter  
LIGO  
D0902569-v1

11

- PN55  
TEC Driver  
LIGO  
D1201359-v1

- E1 #6-32 1/4" flat
- E2 #6-32 1/4" flat
- McMaster-Carr  
91099A205

Blank

- E3 #6-32 1/4" flat
- E4 #6-32 1/4" flat
- McMaster-Carr  
91099A205

CM Sum A

- E5 #6-32 1/4" flat
- E6 #6-32 1/4" flat
- McMaster-Carr  
91099A205

CM Sum B

- E7 #6-32 1/4" flat
- E8 #6-32 1/4" flat
- McMaster-Carr  
91099A205

ALS Fiber  
Distribution

- M12 Color PT100
- 1 brown RL+
- 2 white R+
- 3 blue RL-
- 4 black R-

VCO

- External Sensor  
for example  
Newark 35M2405  
& 15M4877

- E25 #6-32 1/4" flat
- E26 #6-32 1/4" flat
- McMaster-Carr  
91099A205

Temperature  
Sensors

- E27 #6-32 1/4" flat
- E28 #6-32 1/4" flat
- McMaster-Carr  
91099A205

DC PDs  
ISCT6

- E29 #6-32 1/4" flat
- E30 #6-32 1/4" flat
- McMaster-Carr  
91099A205

Auxiliary  
ISCT6

- E29 #6-32 1/4" flat
- E30 #6-32 1/4" flat
- McMaster-Carr  
91099A205

DC PDs  
ISCT1

- E31 #6-32 1/4" flat
- E32 #6-32 1/4" flat
- McMaster-Carr  
91099A205

Auxiliary  
ISCT1

- E33 #6-32 1/4" flat
- E34 #6-32 1/4" flat
- McMaster-Carr  
91099A205

SHG Oven

Title <b>EtherCAT Corner 5</b>		
Size B	Number <b>D1200132</b>	Revision <b>3</b>
Date: 10/11/2013	Sheet 1 of 4	
File: D:\Users\...\EtherCATCornerE1.SchDoc	Drawn By: Daniel Sigg	

B1 5V/0.6A isolated DC-DC converter, Omron S82S-7305

B2 EK1101 EtherCAT coupler w/ ID switch

B3 EL1124 4-channel digital input terminals, 5V

B4 EL2124 4-channel digital output terminals, 5V

B5 EL3104 4-channel analog input terminals, differential, 16 bits

B6 EL4134 4-channel analog output terminals, differential, 16 bits

B7 EL9190 Feed terminal, arbitrary voltage

B8 EL2124 4-channel digital output terminals, 5V

B9 EL2124 4-channel digital output terminals, 5V

B10 EL2124 4-channel digital output terminals, 5V

B11 EL3104 4-channel analog input terminals, differential, 16 bits

B12 EL3104 4-channel analog input terminals, differential, 16 bits

B13 EL3104 4-channel analog input terminals, differential, 16 bits

B14 EL9410 Power supply terminals for E-bus, diagnostics

B15 EL1124 4-channel digital input terminals, 5V

B16 EL2124 4-channel digital output terminals, 5V

B17 EL3104 4-channel analog input terminals, differential, 16 bits

B18 EL4134 4-channel analog output terminals, differential, 16 bits

B19 EL3692 2-channel high precision resistance terminal

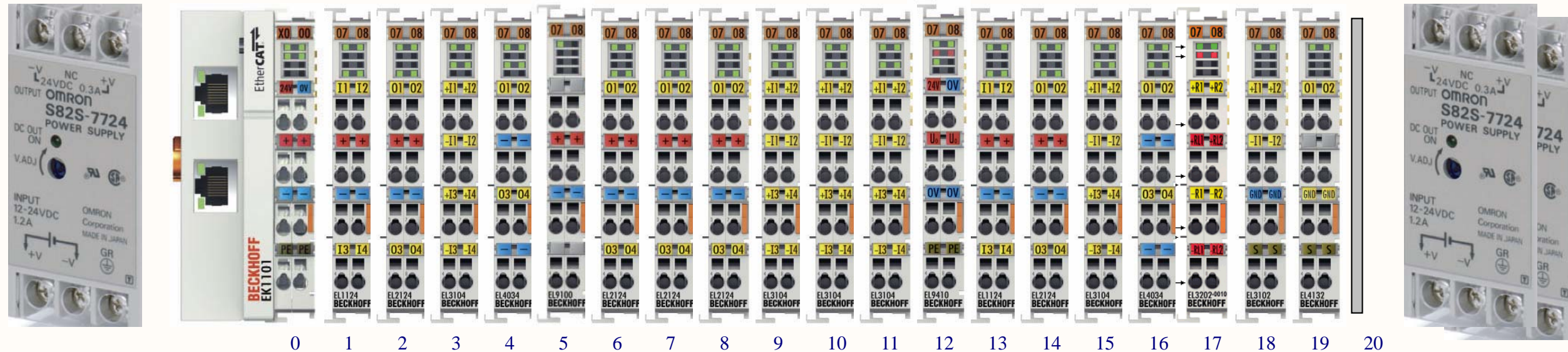
B20 EL3102 2-channel analog input terminals, differential, 16 bits

B21 EL4132 2-channel analog output terminals, differential, 16 bits

B22 EL9011 End cap

B23 5V/0.6A isolated DC-DC converter, Omron S82S-7305

B24 5V/0.6A isolated DC-DC converter, Omron S82S-7305



Ebus	24V	—	24V
Power contacts	5V	5V	5V

DC_1	Auxiliary ISCT6	DC PDs ISCT1	Auxiliary ISCT1	SHG Oven	DC_2 DC_3
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Power budget:

- EL3104: 0.180 A (4x)
- EL4134: 0.265 A (1x)
- EL1124: 0.090 A (1x)
- EL2124: 0.130 A (4x)

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1.595 A

Power budget:

- EL3102: 0.170 A (1x)
- EL3104: 0.180 A (1x)
- EL3202: 0.190 A (1x)
- EL4132: 0.210 A (1x)
- EL4134: 0.265 A (1x)
- EL1124: 0.090 A (1x)
- EL2124: 0.130 A (1x)

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1.235 A

Title <b>EtherCAT Corner 5: Left Rail</b>		
Size B	Number <b>D1200132</b>	Revision <b>3</b>
Date: 10/11/2013	Sheet 3 of 4	
File: D:\Users\...\EtherCATCornerE2.SchDoc	Drawn By: Daniel Sigg	

B25  
5V/0.6A isolated DC-DC converter, Omron S82S-7305

B26  
EK1100  
Beckhoff EtherCAT coupler

B27  
EL3104  
4-channel analog input terminals, differential, 16 bits

B28  
EL3104  
4-channel analog input terminals, differential, 16 bits

B29  
EL3104  
4-channel analog input terminals, differential, 16 bits

B30  
EL4132  
2-channel analog output terminals, differential, 16 bits

B31  
EL1124  
4-channel digital input terminals, 5V

B32  
EL2124  
4-channel digital output terminals, 5V

B33  
EL3202-0010  
2-channel high precision input terminal PT100 (RTD)

B34  
EL9190  
Feed terminal, arbitrary voltage

B35  
EL2124  
4-channel digital output terminals, 5V

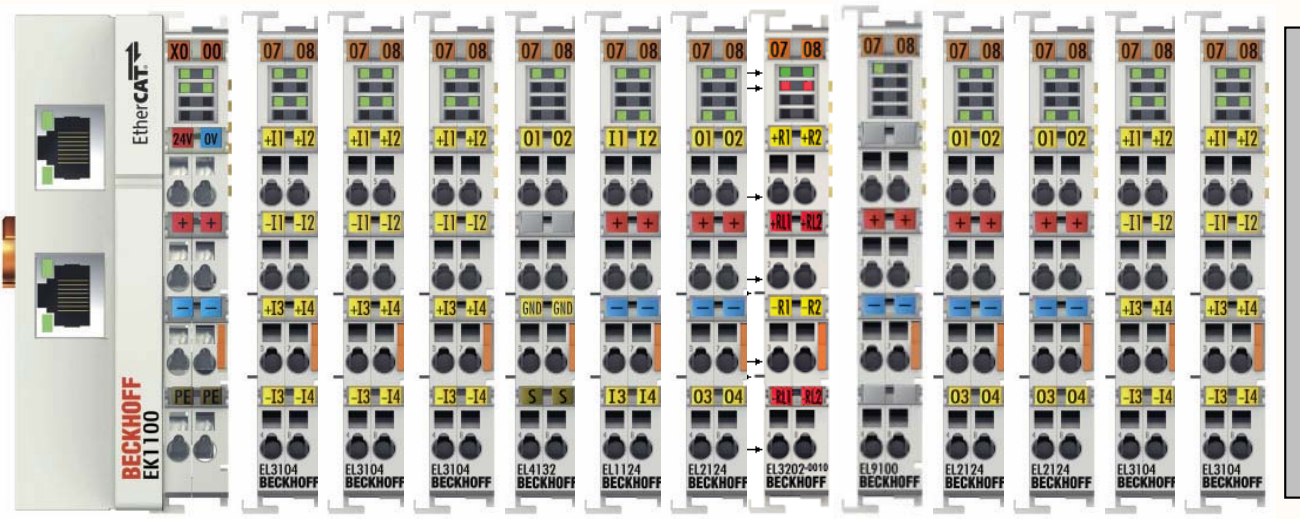
B36  
EL2124  
4-channel digital output terminals, 5V

B37  
EL3104  
4-channel analog input terminals, differential, 16 bits

B38  
EL3104  
4-channel analog input terminals, differential, 16 bits

B39  
EL9011  
End cap

B40  
5V/0.6A isolated DC-DC converter, Omron S82S-7305



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

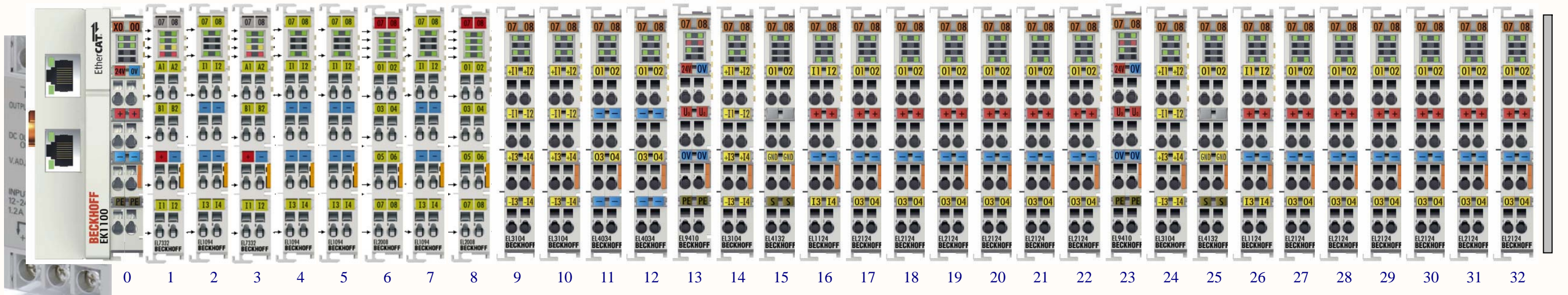
Ebus 24V —  
Power contacts 5V 5V

DC\_4 RF Fiber Dist. Temp. DC PDs ISCT6  
Low Noise VCO

Power budget:  
 EL1124: 0.090 A (1x)  
 EL2124: 0.130 A (3x)  
 EL3104: 0.180 A (5x)  
 EL3202: 0.190 A (1x)  
 EL4134: 0.265 A (1x)  
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 1.745 A

Title <b>EtherCAT Corner 5: Middle Rail</b>		
Size B	Number <b>D1200132</b>	Revision <b>3</b>
Date: 10/11/2013	Sheet 4 of 4	
File: D:\Users\...\EtherCATCornerE3.SchDoc	Drawn By: Daniel Sigg	

1	2	3	4	5	6
B41 5V/0.6A isolated DC-DC converter, Omron S82S-7305					
B42 Beckhoff EtherCAT coupler					
B43 EL7332 2-channel DC motor output stage 24 V DC, 1 A					
B44 EL1094 4-channel digital input terminals, 24V, n-type					
B45 EL7332 2-channel DC motor output stage 24 V DC, 1 A					
B46 EL1094 4-channel digital input terminals, 24V, n-type					
B47 EL1094 4-channel digital input terminals, 24V, n-type					
B48 EL2008 8-channel digital output terminals, 24V					
B49 EL1094 4-channel digital input terminals, 24V, n-type					
B50 EL2008 8-channel digital output terminals, 24V					
B51 EL3104 4-channel analog input terminals, differential, 16 bits					
B52 EL3104 4-channel analog input terminals, differential, 16 bits					
B53 EL4134 4-channel analog output terminals, differential, 16 bits					
B54 EL4134 4-channel analog output terminals, differential, 16 bits					
B55 EL9410 Power supply terminals for E-bus, diagnostics					
B56 EL3104 4-channel analog input terminals, differential, 16 bits					
B57 EL4132 2-channel analog output terminals, differential, 16 bits					
B58 EL1124 4-channel digital input terminals, 5V					
B59 EL2124 4-channel digital output terminals, 5V					
B60 EL2124 4-channel digital output terminals, 5V					
B61 EL2124 4-channel digital output terminals, 5V					
B62 EL2124 4-channel digital output terminals, 5V					
B63 EL2124 4-channel digital output terminals, 5V					
B64 EL2124 4-channel digital output terminals, 5V					
B65 EL9410 Power supply terminals for E-bus, diagnostics					
B66 EL3104 4-channel analog input terminals, differential, 16 bits					
B67 EL4132 2-channel analog output terminals, differential, 16 bits					
B68 EL1124 4-channel digital input terminals, 5V					
B69 EL2124 4-channel digital output terminals, 5V					
B70 EL2124 4-channel digital output terminals, 5V					
B71 EL2124 4-channel digital output terminals, 5V					
B72 EL2124 4-channel digital output terminals, 5V					
B73 EL2124 4-channel digital output terminals, 5V					
B74 EL2124 4-channel digital output terminals, 5V					
B75 EL9011 End cap					



Ebus	24V			24V				24V
Power	24V			5V				5V

**DC\_6 Beam Diverter Shutter CM Sum A CM Sum B**

Power budget:  
 EL7332: 0.140 A (2x)  
 EL1094: 0.090 A (4x)  
 EL2008: 0.110 A (2x)  
 EL3104: 0.180 A (2x)  
 EL4134: 0.265 A (2x)  
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 1.750 A

Power budget:  
 EL3104: 0.180 A (1x)  
 EL4132: 0.210 A (1x)  
 EL2124: 0.130 A (6x)  
 EL1124: 0.090 A (1x)  
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 1.260 A

Power budget:  
 EL3104: 0.180 A (1x)  
 EL4132: 0.210 A (1x)  
 EL2124: 0.130 A (6x)  
 EL1124: 0.090 A (1x)  
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 1.260 A

Title <b>EtherCAT Corner 5: Right Rail</b>		
Size B	Number <b>D1200132</b>	Revision <b>3</b>
Date:	10/11/2013	Sheet 2 of 4
File:	D:\Users\...\EtherCATCornerE4.SchDoc	Drawn By: Daniel Sigg